

### Amendments to the Abstract

Please add the following Abstract:

A method for screening compound libraries or portions thereof by one or more bioavailability properties including absorption is provided. Novel compound libraries selected for bioavailability as produced by the method also are provided. The methods involve screening of compounds by absorption properties, and optionally absorption and one or more additional properties. The methods are exemplified by screening of a plurality of compounds of a first compound library and generating an absorption profile for each test sample of interest. Absorption profiles derived from screening the first library are compared and compounds having a desired absorption profile are selected to generate a second library. The absorption profiles are capable of being generated by supplying in vitro bioavailability data to a computer-implemented physiologic-based pharmacokinetic tool of the invention to generate as output a simulated absorption profile for each test sample. The process can be repeated one or more times so as to obtain a convergent library of compounds increasingly optimized for a bioavailability parameter including absorption.